

CLAIMS

We claim:

1. A deployable landing gear truck fairing, comprising:
an elongated body connected to a rising front portion, the elongated body having first
5 and second lateral edges; and
first and second compliant edges affixed to corresponding first and second lateral
edges.
2. The deployable landing gear truck fairing according to claim 1, wherein the elongated
10 body comprises:
a forward assembly and an aft assembly; and
a center seal extending transverse to a direction of the elongated body and positioned
between the forward and aft assemblies.
- 15 3. The deployable landing gear truck fairing according to claim 2, wherein the rising
front portion is part of the forward assembly.
4. The deployable landing gear truck fairing according to claim 2, wherein forward and
aft assemblies are unconnected to one another.
- 20 5. The deployable landing gear truck fairing according to claim 2, wherein the center seal
is affixed to only one of the forward and aft assemblies.
6. The deployable landing gear truck fairing according to claim 2, wherein,

when the truck fairing is mounted on deployable landing gear of an aircraft, the forward and aft assemblies move toward one another when the aircraft takes off, thereby compressing the center seal.

5 7. The deployable landing gear truck fairing according to claim 2, wherein at least one of the forward assembly and the aft assembly comprises an upper shield plate spaced apart from a lower shield plate.

8. The deployable landing gear truck fairing according to claim 7, further comprising a
10 weight bearing spacer between the upper and lower shield plates.

9. The deployable landing gear truck fairing according to claim 8, wherein the weight bearing spacer is positioned beneath a support mounted on an upper side of the fairing.

15 10. The deployable landing gear truck fairing according to claim 7, wherein a first portion of the compliant edge occupies a region between the upper and lower shield plates, and a second portion of the compliant edge projects laterally outward from said region between the upper and lower shield plates.

20 11. The deployable landing gear truck fairing according to claim 8, further comprising a weight bearing spacer between the upper and lower shield plates, wherein the first portion of the compliant edge is laterally outward of the weight bearing spacer.

12. The deployable landing gear truck fairing according to claim 1, wherein the compliant edge comprises one from the group consisting of rubber or fabric stripping, fiber reinforced rubber, nylon brush, spring steel or an inflatable bladder.
- 5 13. The deployable landing gear truck fairing according to claim 1, wherein the compliant edge comprises a soft rubber or an elastomeric material.
14. The deployable landing gear truck fairing according to claim 1, wherein:
the elongated body comprises a forward assembly and an aft assembly;
10 the first lateral edge comprises adjacent first and second lateral edge portions on a first side of the fairing, the first lateral edge portion being associated with the forward assembly and the second lateral edge portion being associated with the aft assembly; and
the second lateral edge comprises adjacent third and fourth lateral edge portions on a second side of the fairing, the third lateral edge portion being associated with the forward
15 assembly and the fourth lateral edge portion being associated with the aft assembly.
15. The deployable landing gear truck fairing according to claim 14, further comprising:
a first compliant edge portion affixed to the first lateral edge portion;
a second compliant edge portion affixed to the second lateral edge portion;
20 a third compliant edge portion affixed to the third lateral edge portion; and
a fourth compliant edge portion affixed to the fourth lateral edge portion,
such that the first and second compliant edge portions are adjacent to one another and
the third and fourth compliant edge portions are adjacent to one another.

16. The deployable landing gear truck fairing according to claim 15, wherein, when the truck fairing is mounted on deployable landing gear of an aircraft, adjacent compliant edge portions are:

spaced apart from one another by a first distance when the aircraft is on the ground;

5 and

move closer to one another when the aircraft is not on the ground.

17. The deployable landing gear truck fairing according to claim 16, wherein opposing surfaces of adjacent compliant edge portions abut one another when the aircraft is not on the
10 ground.

18. The deployable landing gear truck fairing according to claim 16, wherein opposing surfaces of adjacent compliant edge portions are angled.

15 19. A deployable landing gear truck fairing, comprising:

a pair of adjacent fairing sections defining a forward assembly and an aft assembly suitable for mounting on a truck, each assembly having a first side and a second side;

a center seal affixed to at least one of the forward and aft assemblies and positioned between the two assemblies;

20 adjacent first and second compliant edge portions affixed to the first side of the forward and aft assemblies; and

adjacent third and fourth compliant edge portions affixed to the second side of the forward and aft assemblies.

20. The deployable landing gear truck fairing according to claim 19, wherein, when the truck fairing is mounted on deployable landing gear of an aircraft, adjacent compliant edge portions are:

5 spaced apart from one another by a first distance when the aircraft is on the ground;
and
move closer to one another when the aircraft is not on the ground.

21. The deployable landing gear truck fairing according to claim 20, wherein opposing surfaces of adjacent compliant edge portions abut one another when the aircraft is not on the
10 ground.

22. The deployable landing gear truck fairing according to claim 21, wherein opposing surfaces of adjacent compliant edge portions are angled.

15 23. The deployable landing gear truck fairing according to claim 19, further comprising a brake cover fairing.

24. A landing gear noise attenuator for deployable landing gear having a truck beam and tires, the attenuator comprising:
20 a tray positioned under the truck beam;
a rigid portion on the tray; and
at least one compliant edge on the tray, the compliant edge being proximate to the tires and capable of yielding elastically when a force is applied to the edge.

25. An inflatable, deployable landing gear noise attenuator adjustable between a first, deflated position when the deployable landing gear is retracted, and a second, inflated position when the deployable landing gear is deployed.

5 26. The inflatable, deployable landing gear noise attenuator according to claim 25, further comprising retaining means for securely retaining a portion of the attenuator to a structural member of a landing gear assembly.

27. The inflatable, deployable landing gear noise attenuator according to claim 26,
10 wherein the retaining means comprises one from the group of laces, straps and buckles.

28. The inflatable, deployable landing gear noise attenuator according to claim 25, comprising an inner girt, an outer girt, and an inflation tube disposed therebetween, and wherein:

15 the inner girt is configured to secure the noise attenuator to a structural member of a landing gear assembly; and

the outer girt takes on an aerodynamic profile upon inflation of said inflation tube.

29. The inflatable, deployable landing gear noise attenuator according to claim 28,
20 wherein the outer girt comprises a girt material layer attached to a debris-resistant layer.

30. The inflatable, deployable landing gear noise attenuator according to claim 25, wherein the noise attenuator is an inflatable door panel fairing (640) suitable for attaching to a portion of a door panel.

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31. The inflatable, deployable landing gear noise attenuator according to claim 30, wherein the inflatable door panel fairing comprises an inflatable portion that at least partially fills a space between a main strut of a landing gear assembly and a door panel, when said inflatable door panel fairing is mounted on said landing gear assembly and inflated.

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32. The inflatable, deployable landing gear noise attenuator according to claim 31, wherein the inflatable door panel fairing blocks or deflects noise-producing airflows that otherwise would pass between the main strut and the door panel.

10 34. The inflatable, deployable landing gear noise attenuator according to claim 30, wherein the inflatable door panel is attached to an inflatable main strut fairing (540) suitable for mounting on a main strut of said landing gear assembly.

34. The inflatable, deployable landing gear noise attenuator according to claim 25,
15 wherein the noise attenuator is an inflatable main strut fairing (540) suitable for mounting on a main strut of a landing gear assembly.

35. The inflatable, deployable landing gear noise attenuator according to claim 34,
wherein the inflatable main strut fairing (540) covers an outer cylinder of a landing gear strut
20 and moves relative to other components of the landing gear as an inner cylinder of the landing gear strut moves within the outer cylinder, when said inflatable main strut fairing is mounted on said landing gear strut and inflated.

36. The inflatable, deployable landing gear noise attenuator according to claim 34,
25 wherein the inflatable main strut fairing is configured, dimensioned and mounted so as to

allow for sufficient clearance for compression of the strut when landing gear contacts a runway during landing of an aircraft on which said inflatable main strut fairing is mounted.

37. The inflatable, deployable landing gear noise attenuator according to claim 25,
5 wherein the noise attenuator is an inflatable truck fairing (580) suitable for mounting on a truck of a landing gear assembly.

38. The inflatable, deployable landing gear noise attenuator according to claim 37,
wherein the inflatable truck fairing is configured and dimensioned to stay within the
10 boundaries of wheels of landing gear without touching said wheels, when said inflatable truck fairing is mounted on said landing gear and inflated.

39. The inflatable, deployable landing gear noise attenuator according to claim 38,
wherein the inflatable truck fairing comprises specially shaped inner panels configured to
15 prevent the inflatable truck fairing from touching said wheels.

40. The inflatable, deployable landing gear noise attenuator according to claim 25,
wherein the noise attenuator is an inflatable drag strut fairing (600, 650) suitable for mounting
on a drag strut of a landing gear assembly.

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41. The inflatable, deployable landing gear noise attenuator according to claim 40,
comprising a pair of inflatable drag strut fairings, a first configured for mounting on a forward
drag strut and a second configured for mounting on an aft drag strut.

42. The inflatable, deployable landing gear noise attenuator according to claim 25, wherein the noise attenuator is an inflatable torque link fairing (620) suitable for surrounding a torque link of a landing gear assembly.

5 43. The inflatable, deployable landing gear noise attenuator according to claim 42, further comprising an inflatable torque link fairing panel (630) configured to wrap around a lower forward portion of a main strut of the landing gear and to extend aftward over each side of the inflatable torque link fairing, when the inflatable torque link fairing and the inflatable torque link fairing panel are attached to said landing gear and inflated.

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44. The inflatable, deployable landing gear noise attenuator according to claim 42, wherein the inflatable torque link fairing is attached to an inflatable truck fairing (580) that underlies the torque link fairing.

15 45. A system for inflating and deflating inflatable deployable landing gear noise attenuators (510, 520, 530) comprising:

a reservoir (114) configured to store pressurized air of sufficient pressure to inflate one or more of said noise attenuators, said reservoir being connected to a pressure regulator (101);

20 vacuum means configured to remove air from said noise attenuators; and

a manifold (124) configured to selectively connect said reservoir and said vacuum means to said noise attenuators.

46. The system according to claim 45, further comprising a compressor (118) for charging
25 said reservoir.

47. The system according to claim 45, wherein engine bleed air (126) is used to charge said reservoir.

5 48. The system according to claim 45, wherein the vacuum means comprises a vacuum pump (122).

49. The system according to claim 45, wherein the vacuum means comprises an engine vacuum device (127).

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50. A deployable landing gear noise-reduction apparatus comprising:
a brake cover fairing (240) partially covering a piston and piston housing of a front brake of a landing gear assembly, said brake cover fairing having a less than full circumferential design.

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51. A deployable landing gear noise-reduction apparatus comprising:
at least one fairing insert (264) suitable for inserting into a pocket of a brace (34) belonging to a landing gear assembly to help reduce noise, said fairing insert having a bulbous front section (265) and a tapered rear section (263) to help minimize noise
20 generation.

52. A deployable landing gear noise-reduction apparatus comprising:
a pocket filler fairing (260) secured in a pocket of a brace (34) belonging to a landing gear assembly by means of a non-removable fastener (267).

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53. A deployable landing gear noise-reduction apparatus comprising:

a door/strut interface noise reduction fairing (288) comprising a multi-piece fairing that attaches to a shock strut via an existing hydraulic and/or electrical bracket along a length of said shock strut.

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54. A deployable landing gear noise-reduction apparatus comprising:

a tear-drop shaped shock strut fairing (292) extending from an interface gap around a front of the shock and covering electrical and hydraulic lines that extend along the front of the shock; wherein

10 the tear-drop shaped fairing is configured to allow the shock strut to function both in a deployed pre-touchdown position, and also in compressed position after touchdown.